

Patent
100360.0007US1CLAIMS

1. (Amended) A method of printing an electronic component comprising:
providing a surface;
providing a redox couple comprising an oxidizer and a reducer;
solubilizing at least one of the oxidizer and the reducer in a first solution that contains no more than 5% particulates by weight;
applying the first solution to the surface in a desired pattern rather than coating the entire surface with the first solution, to create a first layer,
initiating a redox reaction in the first layer; and
completing the component by adding at least one additional layer.
2. (Amended) The method of claim 1 wherein the component comprises is an active component.
3. (Original) The method of claim 1 wherein the component comprises an integrated component.
4. (Original) The method of claim 1 wherein the component comprises a power source.
5. (Original) The method of claim 1 wherein the component comprises a battery.
6. (Amended) The method of claim 1 wherein at least one of the oxidizer and the reducer comprises a metal containing compound, the metal selected from the list consisting of copper, iron, cobalt, tin, gold, silver, palladium, platinum, nickel, lithium, aluminum, and titanium.
7. (Original) The method of claim 1 wherein the oxidizer is a strong oxidizer and the reducer is a strong reducer.
8. (Original) The method of claim 1 wherein the redox couple includes a material selected from the list consisting of formate, nitrate, alkoxide nitrate, alkoxide perchlorate, acetate nitrate, acrylate nitrate.

Patent
100360.0007US1

9. (Amended) The method of claim 1 wherein the step of applying comprises depositing the first solution using at least one of a stamp, a rotating plate, and a jet.
10. (Amended) The method of claim 1 wherein at least one of the first layer or the at least of one additional layers comprises an electrolyte.
11. (Original) The method of claim 1 wherein the redox reaction results in the first layer consisting essentially of a pure metal.
12. (Original) The method of claim 1 wherein the redox reaction results in the first layer consisting essentially of a mixed metal oxide.
13. (Amended) The method of claim 1 wherein the step of initiating the redox reaction comprising radiating the applied solution with microwave radiation.
14. (Amended) The method of claim 1 wherein the step of completing the component comprises:
providing a second redox couple comprising a second oxidizer and a second reducer;
solubilizing at least one of the second oxidizer and the second reducer in a second solution;
depositing the second solution onto the first layer, and initiating a redox reaction in the second solution.
15. (Amended) The method of claim 1 wherein the component comprises a battery, and the step of applying comprises depositing the first solution using at least one of a stamp, a rotating plate, and a jet.
16. (Amended) The method of claim 1 further comprising:
providing a second redox couple comprising a second oxidizer and a second reducer;
solubilizing at least one of the second oxidizer and the second reducer in a second solution;
depositing successive deposits layers of the second solution, and initiating a redox reaction in the successive deposits layers to produce a solid conductor that

Patent
100360.0007US1

electrically couples at least two of the layers of the component that are mutually non-adjacent.

17. Canceled.
18. Canceled.
19. (Amended) A method of printing an electronic circuit comprising:
printing a plurality of components according to one of the methods of claim 1 of any of claims 1-16; and
applying the first solution to the surface in a desired pattern that connects at least two of the plurality of components, and initiating a the redox reaction in the desired pattern to produce a conductive trace between the at least two components.
20. (Amended) The method of claim 19 wherein the pattern has a lateral resolution below 10 μm .
21. (Amended) The method of claim 19 wherein the circuit includes a transistor, a power source, and a capacitor.
22. (New) The method of claim 1 dependent on claim 1, applying the oxidizer and reducer in the desired pattern.
23. (New) The method of claim 1 wherein the reducer and the oxidizer are each applied to the surface in the desired pattern.
24. (New) A method of printing an electronic component comprising: providing a surface; providing a redox couple comprising an oxidizer and a reducer; solubilizing at least one of the oxidizer and the reducer in a first solution that contains no more than 5% particulates by weight; applying the first solution to the surface in a pattern of a trace to create a first layer; applying energy to the entire surface; initiating a redox reaction in the first layer; and completing the component by adding at least one additional layer.